

Notice of Allowability

Application No.

10/690,858

Examiner

Brian M. Healy

Applicant(s)

CHENG ET AL.

Art Unit

2883

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the application filed 10/22/2003.
2. ☒ The allowed claim(s) is/are 1-21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 10/22/03
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


BRIAN HEALY
PRIMARY PATENT EXAMINER

DETAILED ACTION***Allowable Subject Matter***

The following is an examiner's statement of reasons for allowance: the closest prior art of record, i.e. Hamel et. al., U.S.P. No. 5,748,815 teaches an optical wavelength multiplexer/demultiplexer comprising: an optical waveguide input 68, a grating 70, two sets of output fiber 79,80,82,94 and 72,74,76,78 which are dispersed and diffracted according to the order of the grating 70 so optical power/optical wavelength/diffraction order can be monitored along the optical network.

Hamel does not teach or suggest the claimed optical grating device including a grating arrangement for receiving a different wavelength signal from plural input sources and for generating an output signal of multiplexed wavelengths at a zero diffraction order output port of the grating arrangement and at least one predetermined wavelength output signal at one of a group consisting of a separate predetermined location in at least one of a symmetric non-zero diffraction order of the grating arrangement within the grating arrangement itself and a combination thereof and at least one power tap coupled to the grating arrangement to detect power of a separate one of the at least one predetermined wavelength output signal. These limitations are recited in claim 1. Dependent claims 2-10 include the limitations of claim 1 and are also allowed by virtue of their dependency. See the dependent claims for additional limitations. Claim 11 is similar in scope to claim 1 but includes the grating arrangement that accepts widely spaced wavelength signals from plural radiation sources and uses plural power taps. Claim 12 is allowed by virtue of its dependency upon claim 11. See claim 12 for specific

additional limitations. Claim 13 is similar in scope to claim 11 but includes the grating arrangement that accepts densely spaced wavelength signals from plural radiation sources and uses plural power taps. Claim 14 is allowed by virtue of its dependency on claim 13. See claim 14 for specific additional limitations. Claim 15 is similar in scope to claim 11 but uses a feedback loop for coupling a second wavelength output signal appearing at a non-zero diffraction order output port of the grating arrangement back into the grating arrangement adjacent the zero order diffraction order output port so that each of the different wavelength output signals in the second multiplexed output signal are demultiplexed and focused to separate input ports of the grating arrangement that are not coincident with the input ports receiving the wavelength signals.

In addition, neither Hamel et. al. or any of the references of record teaches or suggests the claimed limitations of claim 16 that includes an optical grating device that includes first and second free propagating regions that is used in conjunction with an arrayed waveguide grating with the arrayed grating array including different lengths of optical waveguides that receive multiplexed optical signals to a first power tap.

Dependent claims 17-18 includes the limitations of claim 16 along with other additional limitations (See the dependent claims for specific additional limitations).

Finally neither Hamel et. al. or any of the other references of record teaches or suggests the limitations of claim 19 which includes in combination optical grating means including input means for receiving signal power of different optical wavelengths from each of a plurality of radiation sources and output means for providing one of a group consisting of multiplexed power and individual power of the different optical wavelengths

with the output means including a zero-order diffraction area and at least one non-zero diffraction area, a main output means coupled to the non-zero diffraction area for abstracting multiplexed output power and auxiliary output means coupled to the non-zero-order diffraction area for abstracting power of one of the group consisting of the multiplexed power and individual powers of the different optical wavelengths.

Dependent claims 20 and 21 are allowed by virtue of their dependency upon claim 19 along with additional limitations. (See the dependent claims for the specific additional limitations.).

The following references are also cited by the Examiner as background or related art only: Khazaei et. al., U.S.P. No. 6,931,034 (Figs.1-21), Cheng et. al., U.S. Patent Application Publication No.US 2005/0089269A1 (Figs.1-6), Kaneko, U.S. Patent Application Publication No. US 2002/0057875A1 (Figs.1-26), and Squires et. al., U.S.P. No. 6,937,795 (Figs.1-7).

A copy of PTO-1449 will be included in this office action.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian M. Healy whose telephone number is (571)272-2347. The examiner can normally be reached on Compressed schedule Mon.-Thurs. 6AM-5PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571)272-2415. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Brian M. Healy
Primary Examiner
Art Unit 2883


BRIAN HEALY
PRIMARY PATENT EXAMINER